Feinberg
consulting, inc.
a passion for caring... a promise of peace of mind™

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From: Pam Feinberg-Rivkin, RN, CCM, CRRN, ABDA, QRP
Certified Case Manager
Owner/CEO Feinberg Consulting, Inc.
Catastrophic Case Management Services/Comprehensive Elder Care
Founded 1996

Clients serving 412

Employees: 40
Nurses, Social Workers, Educational Consultant, Vocational Rehabilitation, Occupational Therapist, Management and other staff

Points:

- **Providing Case Management for Catastrophic Injuries related to MVA**
  - Assessment of needs, resources, education, coordination of all care and treatment as well as attendance at medical appointments to provide collaborative treatment for clients in their care, rehabilitation and recovery from the injuries
  - Providing Educational Assistance and guidance with special educational needs to include scheduling and attending IEPs, information from neuropsychological evaluations and physician recommendations with schools and parents for clients special educational needs
  - Vocational Rehabilitation assessment and direction with vocational needs when an individual cannot return to their former employment or also require special assistance with vocational direction when injured prior to entering the work force
  - Without no-fault as it is, individuals who sustain catastrophic injuries would not receive ongoing treatment for their injuries for their recovery
  - Individuals will end up at home with bankrupt families, in overburdened nursing homes, in jails, psychiatric facilities and homeless (all being a burden to the State of Michigan and taxpayers).

- **Catastrophic Clients Injuries due to MVA**
  - Traumatic Brain Injury
  - Spinal Cord Injury (Paralysis)
  - Multiple Trauma
  - Burns
  - Amputations

- **Without the current auto no-fault system**, these individuals who have sustained injuries would need to resort to the state of Michigan for payment of services. This cost for treatment would amount to over $1,000,000.00 for many individuals, due to the severity of the injuries (**see Pediatric Life Care Plan page 12 for yearly and lifetime costs associated with a spinal cord injury).**
- **Families will become bankrupt** with attempting to provide payment for services.
- **Families will lose their jobs**, due to caring for their loved one, which will increase state unemployment.
- **Increased unemployment and bankruptcy with no revenue from no-fault.**
- **Trauma Units will close and hospitals will lose millions of revenue.**
- **Financial burden to the state with catastrophic medical care, that is now taken care of in the private sector.**

Sincerely,

Pam Feinberg-Rivkin, RN, CRRN, CCM
Owner/CEO Feinberg Consulting, Inc.

Att: Pediatric Life Care Plan

Life Care Plan
For
John Doe

Prepared by:

Certified Life Care Planner RN, LNC, CLCP, CCM

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Table of Contents

All prices quoted in this Life Care Plan are present year and all costs are calculated for a 12 month period. It is recommended that an economist determine the costs beyond this time frame and the future care identified in this report. In addition, this plan will need to be re-evaluated if John Doe becomes medically unstable, has a significant change in functional status, and/or his condition changes due to the disease process or the degenerative process of aging. It is recommended that every 3-5 years, the life care plan be reviewed and revised according to any changes that may take place in John Doe health that relate to his spinal cord injury.

Date of Report:	May 1, 2009
Source of Referral:	Jane Smith ABC Insurance Co. Indianapolis, IN 46251
Client:	John Doe
Date of Birth:	3/25/2003
Age:	6 years old
Date of Injury:	December 3, 2006
Race:	Caucasian

Life Care Plan for John Doe
Narrative Summary

Introduction

Jane Smith, adjustor with ABC Company, has requested a Life Care Plan be provided for John Doe as it pertains to his injury sustained on December 3, 2006. The Life Care Plan will assist with providing determination of long term needs, including a plan of care with associated projected costs over John Doe lifetime. The goal of this plan is to develop a plan of care that will assist in maintaining John Doe medical stability, maintain or increase his functional status and quality of life, and assist in the prevention of further potential complications.

The Life Care Plan report will consist of two sections, a narrative and table section. The narrative section will include a summary of the available medical records, client interview, and conclusions.

The second section of the Life Care Plan is in table form and provides in detail, the future projected care needs, costs, rationale and recommendations for care. This will include an itemized listing of future medical care, procedures, hospitalizations, surgeries, evaluations, therapies, diagnostic testing, medications, equipment, supplies, home furnishings, wheelchair needs, accessories, and maintenance, as well as home care, aids for independent living, case

management, transportation, health and strength maintenance, and potential complications. The costs will be broken down into annual and one-time costs. The sources for costs will be included in a source list at the end of the report in addition to a bibliography.

Description of Events:

John Doe is currently a 6-year-old male, who at the age of 3 years and 9 months, was a back seat restrained passenger of a vehicle, which was involved in a head on collision at a high rate of speed. Also involved in the accident, was John Doe parents, Mr. & Mrs. Doe, and his 9 month old brother, who have mostly recovered from their injuries.

John Doe was transported via ambulance to Helen DeVos Children's Hospital within the Spectrum Butterworth Health System in Grand Rapids, Michigan where he was admitted for treatment of his injuries. John Doe injuries included a C1-2 Fracture and a stretching spinal cord injury of C6-T1 which resulted in C6-7 tetraplegia, a 6 centimeter right frontotemporal scalp laceration, mild traumatic brain injury, bilateral pulmonary contusions, small bowel perforation, and right hand fractures of the 3rd, 4th and 5th digits.

The hand was splinted for the treatment of the finger fractures. On December 8, 2006, a surgical C1-2 fusion was completed for the unstable fracture. The surgery consisted of a bone graft from the right iliac crest, and secured with wires and screws. Surgical repair of the perforated bowel was completed on December 10, 2006. On December 18, 2006, John Doe required a surgical tracheostomy for extended mechanical ventilation for respiratory failure secondary to the cervical fracture. A G-tube was placed for enteral nutrition in December 2006. He was weaned off of the ventilator and eventually the tracheotomy was discontinued in February 2007 prior to discharge. The G-tube was discontinued in April 2007 after advancement to a regular diet.

John Doe was discharged from Helen DeVos Children's Hospital on January 4, 2007, and admitted to Mary Free Bed Rehabilitation Center for inpatient rehabilitation where he received Speech, Physical and Occupational therapies.

On February 14, 2007, John Doe was evaluated by Dr. X, Pediatric Pulmonologist at Helen DeVos Children's Hospital, in the Sleep Medicine Clinic for respiratory muscle weakness secondary to the cervical fracture. A sleep study was completed on May 15, 2007 for the evaluation of suspected obstructive sleep apnea and determine John Doe readiness to have his capped tracheostomy decannulated. Per the report, there was no evidence of gas exchange abnormalities or sleep disorders. John Doe had a follow up evaluation by Nurse Practitioner in the Sleep Medicine Clinic, where John Doe had reportedly been asymptomatic with no exacerbations of asthma.

John Doe was transferred to The Rehab Institute of Chicago on February 22, 2007 per the request of his parents, for a continuation of the listed therapies.

While in Chicago, a home evaluation was completed by Physical Therapist from The Center for Spinal Cord Recovery, on March 20, 2007, and home modifications were completed in

preparation for John Doe discharge home. Degraaf Interiors installed new hard wood flooring throughout all areas of the home. Black Creek Construction, Inc. completed the modifications for a bedroom with attached accessible bathroom. The previous bathroom was a half bathroom, and was reconstructed to include a five-foot turning radius for the wheelchair, a raised toilet, wheelchair accessible sink and bathtub/shower. The doorway into the bedroom was widened to accommodate a wheelchair.

John Doe was discharged from The Rehab Institute of Chicago on May 4, 2007 and returned to his home. He then received home-based Physical and Occupational therapies through Worth Rehab until outpatient therapies were coordinated. On September 17, 2007, he started Physical Therapy at The Center for Spinal Cord Injury Recovery (Rehabilitation Institute of Michigan) in Rockford, Michigan, 3 hours per day, 3 days per week. He continued with home based Occupational Therapy, as an occupational therapist was not available at The Center for Spinal Cord Injury Recovery. The occupational therapy was discontinued on an unknown date.

He was admitted into a 3-month research study at The University of Florida on February 4, 2008, and returned home on May 24, 2008. He resumed his physical therapy at The Center for Spinal Cord Injury Recovery on June 2, 2008, 3 hours per day, 2 days per week.

A variety of complications have occurred as a result of the automobile accident. In March 2007, John Doe was treated with oral antibiotics for infection around the G-tube and of the eye, while in Chicago. He was admitted into Spectrum Butterworth Hospital in Grand Rapids, Michigan from June 6, 2007 – June 9, 2007 for a urinary tract infection requiring intravenous antibiotics. He had been treated for two prior urinary tract infections during his initial hospitalization following his accident, and was treated again with oral antibiotics in June 2008. John Doe was treated for pneumonia with oral antibiotics in November 2007, and while in Florida was admitted to Shands Healthcare System for pneumonia from March 18, 2008 – March 23, 2008. He was admitted to Spectrum Butterworth Hospital from November 11, 2008 – November 16, 2008, for a back abscess MRSA (Methicillin- resistant Staphylococcus Aureus) infection, requiring a surgical Incision and Drainage of the abscess on November 15, 2008.

Medical History:

John Doe was born after an uncomplicated labor, 4 weeks premature at 36-week gestation. He was in the Intensive Care Unit for underdeveloped lungs for approximately 2 weeks.

As a baby, John Doe was diagnosed with Asthma and required the regular use of nebulizers until the age of 2, with no further complications until his injuries. He had met all childhood developmental milestones until the onset of his injuries.

He is allergic to the medication, Penicillin, which causes a reaction of hives.

Summary of medical history:

Asthma – infant to age 2
C1-2 Fracture and a stretching spinal cord injury of C6-T1
C6-7 Tetraplegia
Right hand 3rd, 4th, 5th digit fractures
Small bowel perforation
Right frontotemporal scalp laceration
Mild Traumatic Brain Injury
Bilateral Pulmonary contusions
Neurogenic bowel and bladder
Pneumonia, November 2007, March 2008
Urinary Tract Infection, December 2006, June 2007, June 2008
MRSA back abscess, November 2008

Surgeries
C1-2 Fusion - December 8, 2006
Perforated small bowel repair - December 10, 2006
Tracheostomy - December 18, 2006
G-Tube Placement - December 2006
Incision & Drainage of back abscess - November 15, 2008

Interview with:

The onsite interview was conducted on April 13, 2009 at John Doe home in Hudsonville, Michigan. Included in this meeting was parents, John Doe, his minor brother and sister, and Certified Life Care Planner RN, LNC, CLCP, CCM with Feinberg Consulting.

The information was provided by both parents, which were very pleasant and cooperative throughout the interview. John Doe played quietly throughout the interview, and was placed in a variety of seating locations interacting appropriately with his brother.

Current Status:

John Doe currently lives with his parents, Mr. & Mrs. Doe, his 3-year-old brother, and his 4-month-old sister, Elisiv. They have adequate family support with Mrs. Doe's parents and 17-year-old sister, all of who live approximately 20 minutes away. Mrs. Doe provides the majority of care for John Doe, as Mr. Dow's employment requires frequent travel. Mrs. Doe's mother, assists in John Doe care as needed.

They reside in an approximately 1100 square foot, three bedroom, ranch style home on a paved road in a rural area on approximately one acre of land, with no existing basement. They have purchased the home and owe another five years on a land contract. The primary entrance / exit utilized, is from the two car attached garage. A wedged wood uneven ramp existed that was

built by Mr. Dow, as minimal space existed for both a car and the modified van, as well as limited parking outside of the garage. The ramp was secure and sturdy, but with no sides, and uneven surfaces to the platform and the floor of the garage. Mr. Doe reported that he had built the ramp, declining a ramp with the recommended ADA guidelines, in order to be able to park both cars in the garage. Due to limited space available, the van ramp requires manual assistance for proper placement for John Doe to be lifted into the van. The front entrance to the home has a cement porch with one step that is not ramped. From the interior, furniture would need to be moved to remove John Doe in an emergency through the front entrance. The other optional exit was off the dining area through a glass sliding door with no ramp / wedge, which led onto a wooden platform, with various holes in the wood planks, in need of repairs. John Doe would not be able to independently safely exit the home in an emergency

The home had an open floor plan, with limited floor space secondary to John Doe various equipment and wheelchair needs, as well as the children's' toys and such. The only space for the power chair was in the dining room, blocking the exit door in order to maintain the charged battery. John Doe has access from the limited living room space through the kitchen and into his bedroom. He shares a bedroom with his brother, and his parents and sister sleep in the other two bedrooms on the other end of the home. There is a baby monitor in his room in which he calls for his mother when needed. John Doe sleeps in an electric adjustable twin bed. His adjoining bathroom had a bathtub with a hand held shower wand that did not include a nonskid surface. He had a rolling shower/commode chair that is only used for his bowel program and rolls over the toilet. He has a bathtub seating system however, Mrs. Doe reported that she primarily lifts him into the bathtub, and that he has continual supervision.

Mr. Doe displayed blue prints for complete home modifications completed by New Dimension Building, based on recommendations from PT, to make the home barrier free and accessible for John Doe. Mr. Doe expressed that he prefers to have a new barrier free home built for John Doe, as well as keep his existing home. This would provide them with the option of living and providing care for John Doe into adulthood, or based on John Doe level of independent functioning as an adult, he could live in the new home, and the remainder of the family could move back into the present home. Mr. and Mrs. Doe are hopeful that John Doe will become as independent as possible as an adult.

John Doe attends full day kindergarten alternating three days one week and two days the next. On the opposite two days per week, he attends physical therapy for three hours at The Center for Spinal Cord Injury Recovery. Mr. and Mrs. Doe expressed wanting to keep John Doe in therapy until he is an adult at age 18, however, they do not want to take him out of school for therapies, as the 2009-2010 school year will be full days five days per week. The operational hours for The Center for Spinal Cord Injury Recovery are Monday thru Friday until 4:00pm. They reported that when John Doe misses his therapy for a week, he has a decline in his functional status, losing strength. Their preferred choice is to have an exercise room, with all of the necessary equipment necessary, and have a physical therapist assist him at home, as they have most of the necessary equipment.

His home exercise plan currently consists of daily stretching exercises. He completes therapeutic muscle stimulation, which consists of electrode garments of shorts, vest, arms and calves. He

alternates wearing each garment, completing the therapy three times weekly for thirty minutes at a time. They also complete exercise with the Lite gait and treadmill, which he is harnessed, and Mr. and Mrs. Doe manually move his legs simulating walking.

John Doe was observed crawling from his bedroom to the living room using his unprotected elbows, dragging his lower extremities. No motor movement of his lower extremities was noted. He did have motor movement of his upper extremities but did appear extremely weakened, and his fine motor was impaired. With further questioning regarding elbow pads for protection, he has two pairs of soft padded elbow protection, but uses them primarily at school and at therapy on carpeted surfaces, as they were too slippery on the hardwood surface. He was pleasant, smiling and quietly playing with his brother throughout the meeting. John Doe was manually lifted into the tomato chair, which is a contoured soft fabric chair that sits low to the floor, and was observed eating with his fingers, and placed at a standard four legged children's table. He was able to remove himself from the chair by using his trunk and falling to the floor. Per John Doe parents, he utilizes the various equipment throughout the day, such as the tomato chair, manual wheelchair, and dynamic standing frame. Two chairs had also been purchased to provide secured positioning that was of standard height.

Medically, John Doe has had no further complications with Pneumonia since March 2008. Per Mrs. Doe, prior to every episode of pneumonia, he had an upper respiratory infection, in which John Doe was not able to clear his secretions secondary to his weakened respiratory muscles. They now administer Pulmicort inhaled nebulizers with a face mask once daily that strengthens his lungs for maintenance and preventative for the pneumonia. She reported that with the nebulizing treatments, he is better able to cough and clear his secretions, and has not developed further complications of pneumonia following a respiratory infection.

Since John Doe last complication of a urinary tract infection in June 2008, he was prescribed a gentamycin wash to flush his bladder, if a urinary tract infection is suspected. Mrs. Doe reported the last use was approximately four months ago, and she would normally complete the flush twice daily for two days, if his urine quality changes, which then clears the urine.

John Doe bowel program is completed daily without concerns. He has no bowel sensation, and their typical routine is to insert the bisacodyl suppository, and then place him for toileting after fifteen minutes. Rarely does he go more than one day between bowel movements. He also has no sensation for urination or sensing a full bladder, therefore, he is catheterized every four to five hours throughout the day, however, and he wears diapers for frequent urinary leakage. When he is at school, the paraprofessional, who was trained by Mrs. Doe, completes the catheterization.

John Doe wears supportive bilateral lower extremity orthotics during sleeping hours, however, most recently developed skin breakdown on his ankle and has not been wearing them. Mrs. Doe now believes the skin breakdown was related to his tennis shoes, and the skin has healed with no further concerns. The orthotics have been adjusted since he received them.

John Doe requires total assistance with transfers and activities of daily living; however, he has had improved strength and trunk control with continued therapies. His manual wheelchair was purchased based on recommendations from The Rehabilitation Institute of Chicago. However,

once returning home, he was noted to have poor posture and sitting abilities in the chair, as well as difficulties maneuvering the chair independently secondary to the weight and inflexibility in the frame. He required frequent adjustments to promote proper posture, and prevent sliding in the chair. He is currently using a loaner manual wheelchair that is made from Titanium, lightweight, and tilts for better maneuvering and sitting position. Mrs. Doe reported that Airway Oxygen Inc had fit him for the new manual chair. He uses a Kid-ab-ra wheelchair cushion, but plans to change cushions for the manual wheelchair. John Doe requires total assistance with meal preparation, but is able to feed himself using standard eating utensils. He is able to brush his teeth using a standard toothbrush, but his parents assist with brushing his teeth for proper technique for preventative measures.

Transportation is provided by Mr. and Mrs. Doe via purchase of a 2007 Buick Terraza Braun Entervan Conversion modified van, by Clock Conversions, in August 2007. The current mileage on the van is 37,000 miles, and no concerns were reported in the functioning of the tie downs or lift. Mr. Doe reported the amount of mileage is excessive in comparison to normal use, as they traveled to Florida for the research study.

Educational:

John Doe started Kindergarten at Forest Grove Elementary in September 2008. The school schedule is 8:30am – 3:30pm, alternating two days one week and three days the other week. He has a paraprofessional available to him at all times. The paraprofessional completes straight catheterization to empty his bladder, once daily during school hours. If any complications arise, she contacts Mrs. Doe. John Doe is assessed monthly by a therapist, to monitor John Doe needs.

He is driven to and from school by Mrs. Doe, and primarily utilizes his manual wheelchair while in the classroom and hallways independently. His power wheelchair is also taken to school daily for use on the playground.

Mr. and Mrs. Doe reported that the only physical accommodations are that of a standard tabletop desk that his wheelchair fits under. He is able to write using a regular pencil with a gripper. No further recommendations for school supplies or equipment have been recommended.

Mrs. Doe reported that he has no cognitive concerns at school, and he is reportedly ready to advance to the first grade without concern and that academically John Doe is doing well.

Current Medications:

Senna-Gen - 8.6mg once daily (Laxative for bowel program)

Bisacodyl Suppository – 5mg suppository once daily at bedtime (Laxative for bowel program)

Ditropan – 10mg once daily (Bladder Spasms)

Gentamycin wash – as needed (Bladder infection)

Pulmicort – 0.5mg nebulizer once daily at bedtime (Maintenance for Improved lung function)

Clear Tract D-Mannose Formula – one scoop daily with juice (Bladder infection prophylaxis)

Treating Physicians:

Urologist
25 Michigan Street North East
Grand Rapids, MI 49503
(616) 459-4171

Physiatrist
The Center for Spinal Cord Injury Recovery
515 East Division Street
Rockford, MI 49341
(616) 866-6859

Primary Care Physician
Western Michigan Pediatrics
1915 Georgetown Center Drive
Suite 102
Jenison, MI 49428
(616) 457-5075

Medical Records/Bills Reviewed:

.....Rehabilitation Institute of Michigan Physical Therapy notes & bills
.....Spectrum Health Worth Rehab Therapy notes & bills
.....Health Partners records & bills
..... Spartan Medical Supply bill
..... Carelinc Medical Equipment bill
..... letter of medical necessity for wheelchair
..... Spectrum Health-Butterworth Hospital records DOA 11/11/08
.....Progressive Medical Pharmacy bill
... Meijer,Target,Fresh Market,Vital Nutrition,Mother Earth,CVS,Wal-Mart & Family Fare receipts
.....Pediatric bill when hospitalized at Butterworth
..... ABC Bill Analysis report
.....Advanced Radiology Services bill from inpatient ultrasound
..... Prescription, bill and Letter of Medical Necessity for Wearable Therapy
.....Preferred Case Management reports & bills
.....Urologic Consultants, PC bill
.....Spectrum Health Ultrasound report 9/23/08 & bill
..... letter of medical necessity for AeroChamber
.....Airway Oxygen bill
..... Physical Therapy Home Plans Review with Recommendations
..... Physical Therapy Functional Home Evaluation
..... New Dimension Building-renovation plans
..... Spectrum Health Urinalysis bill 6/16/08
..... ABC Claim Reports
..... Rehabilitation Institute of Chicago records DOA 2/22/07 & bill
.....Compounding Pharmacy of Wyoming Park bill
..... Urine Microbiology report 7/14/08
.....Laboratory bill 31608
..... Spectrum Health-Butterworth Hospital records DOA 6/6/07
..... CPNP note
.....Clock Conversion-van quote 6/8/07
..... Spectrum Health-Butterworth Hospital DOA 12/3/06
..... DeVos Children's Hospital-Sleep Study report 2/6/07
..... Dr. X bill
..... Cole Rehab Technologies equipment quotes
.....Mary Free Bed bill DOA 1/4/07
..... Superior Air Ground Ambulance bill
..... DeGraaf Interiors bill
..... Life EMS transportation bill
..... ISO Claim Search
.....BCBS Explanation of Benefits
..... Shands Health care records DOA 3/18/08 & bill
..... Mobility Research Lite Gait bill
.....Pediatric Physical Therapy kids bills
..... Electronic Waveform Lab
..... Certificates of Medical Necessity for BP cuff, Stethoscope, cath supplies
..... Specialized Home Design bill log
.....Dr. X note
.....Dr. X note
.....Dr. X note

..... Timesys statements
.....Black Creek Construction bill

Life Expectancy: (According to the Life Expectancy.com - Life Tables)

Life expectancy according to the life expectancy.com, Life Tables indicated that a 6 year-old white male should live another 72.4 years. The profile summary included region, race, gender, height and weight, never smoking and no alcohol consumption. According to Life expectancy.com, as an adult that developed a spinal cord injury, life expectancy may be reduced by 50%, and injury sustained as a child may reduce the life expectancy more, however, it is difficult to determine based on complications. For purposes of this life care plan, life expectancy was determined without including the injuries.

Conclusion:

John Doe appeared happy, and fully interactive with his siblings and parents. They have adjusted to their current living situation, but the living space is extremely limited due to all of John Doe equipment needs. He requires moderate to maximum assistance for his activities of daily living as well as safety within the current living environment. He has made functional gains and continues to improve.

Mrs. Doe is age 29, and Mrs. Doe is age 28. They reported that they are able to provide care for John Doe, regardless of their injuries sustained in the automobile accident. They have mostly recovered, but with residual pain intermittently. They reported that extended family members are very supportive and helpful when needed.

Their goal for John Doe, is that he remains as active as possible through his life, and live as independent as possible. The information provided in this life care plan reflects the option of John Doe remaining in his home environment for lifetime with assistance.

Submitted by:

Certified Life Care Planner RN, LNC, CLCP, CCM
Certified Life Care Planner

TOTAL PROJECTED COSTS

Projected Care:	Page:	Annual Cost:	Total Lifetime Cost:
Medical Care:	13	$2099.00 to $3167.00	$151,757.70 to $228,974.10
Procedures/Hospitalizations /Surgeries	14	0	0
Evaluations:	15	$1,036.00 to $2,990.00	$31,947.77 to $91,851.84
Therapies:	17	$46,800.00 to $64,800.00	$1,033,080.00 to $1,494,960.00
Diagnostic Testing:	18	$1,133.86 to $2,571.54	$81,978.07 to $185,922.35
Medications:	19	$6,831.62 to $7,023.62	$486,375.19 to $500,256.79
Supplies:	21	$13,352.64 to $14,504.98	$960,840.97 to $1,044,155.15
Equipment:	22	$9,553.94 to $13,374.00	$390,930.35 to $573,022.02
Orthotics /Prosthetics:	24	$625.00 to $1,500.00	$45,187.50 to $108,450.00
Wheelchairs:	25	$7,100.00 to $16,666.67	$413,880.00 to $998,100.24
Wheelchair Accessories and Maintenance:	26	$766.67 to $3,250.00	$55,430.24 to $234,975.00
Aids for Independent Living:	27	$15,793.00 to $16,768.00	$958,185.90 to $1,027,075.90
Home Care	28	$108,816.00 to $215,952.00	$7,867,396.80 to $15,613,329.60
Case Management:	29	$1,872.00 to $3,744.00	$135,345.60 to $270,691.20
Transportation:	30	$12,303.77 to $17,328.41	$754,184.78 to $1,051,201.35
Health and Strength Maintenance:	32	$2,100.00 to $4,033.33	$146,445.00 to $295,016.42
Architectural Renovations:	34		$282,743.79 to $283,343.79
Educational Plan:	35	0	0
Total Annual Cost:		**$230,183.50 to $387,673.55**	
Total Lifetime Cost:			**$13,795,709.66 to $24,001,325.75**

Medical Care

Description:	Age Initiated:	Through Age:	Cost:	Frequency:	Annual Cost:	Lifetime Cost:
Dr. James McCarthy (Primary Care Physician)	6	78.3	$121.00	1-4 times per year	$121.00 to $484.00	$8,748.30 to $34,993.20
Dr. Brian Roelof (Urologist)	6	78.3	$73.00	Once per year	$73.00	$5,277.90
Physiatrist	6	78.3	$105.00	1-2 times per year	$105.00 to $210.00	$7,591.50 to $15,183.00
Psychological counseling	6	78.3	$150.00 to $200.00	1 time per month	$1,800.00 to $2,400.00	$130,140.00 to $173,520.00
					Total Annual Cost:	**Total Lifetime Cost**
					$2,099.00 to $3,167.00	**$151,757.70 to $228,974.10**

Rationale:

John Doe currently is maintaining a stable neurogenic bladder, free of complications with use of preventative measures. If he remains free of complications, Dr. Roelof anticipates annual clinic visits.

Dr. Hinderer is no longer treating patients in the Rockford, Michigan clinic, therefore, John Doe will be transitioned to another Physiatrist.

Dr. James McCarthy manages John Doe pulmonary status, and recommends annual evaluations with additional clinic visits for complications, transitioning to an adult primary care physician at age 18.

John Doe has not been seen for psychological counseling for coping with a spinal cord injury. PT recommended counseling to include the family, as he has been observed to become frustrated and resistant in therapies at times. During crisis intervention the frequency may increase to weekly.

Procedures/Hospitalizations/Surgeries						
Description:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency:**	**Annual Cost:**	**Lifetime Cost:**
					Total Annual Cost:	**Total Lifetime Cost:**
Rationale:						

No projections recommended or planned at this time based on John Doe current status and dependent on future medical complications.

Evaluations						
Description:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency:**	**Annual Cost:**	**Lifetime Cost:**
Functional home and equipment evaluation	6	78.3	$360.00 per evaluation	Every 2-5 years	$72.00 to $180.00	$5,205.60 to $13,014.00
Physical Therapy evaluation	6	25	$0 to $450.00 per evaluation	2-3 times per year	$0 to $1,350.00	$0 to $25,650.00
Physical Therapy evaluation	26	78.3	$0 to $450.00	Once per year	$0 to $450.00	$0 to $23,535.00
Assistive Technology evaluation	6	78.3	$895.00	Every 5 years	$179.00	$12,941.17
Psychological evaluation	6	6	$200.00 to $250.00	One time initial evaluation	$200.00 to $250.00 (not included in annual costs)	$200.00 to $250.00
Recreational Evaluation	6	20	$270.00	2 times per year	$540.00	$7560.00
Wheelchair Evaluation	6	16	$350.00	Every 2 years	$175.00	$1,750.00
Wheelchair Evaluation	17	78.3	$350.00	Every 3-5 years	$70.00 to $116.67	$4,291.00 to $7,151.67 to
					Total Annual Cost:	**Total Lifetime Cost:**
					$1,036.00 to $2,990.67	**$31,947.77 to $91,851.84**

Rationale:

A functional home and equipment evaluation is recommended to assess home activities of daily living and equipment needs. Evaluation frequency is based on normal growth and development, but may increase if John Doe has excessive growth or weight gain and depending on level of complications. The recommendations include 3 hour evaluations at $120.00 per hour.

Physical therapy evaluations are recommended 2-3 times per year thru age 25, but with no additional costs as the evaluations are ongoing during therapy time. In the event John Doe does not have a consistent physical therapist working with therapeutic exercise, he would require 3 hours of evaluation 2-3 times per year until age 25, then once yearly at $150.00 per hour for 3 hours.

An evaluation by an Assistive Technology Rehab Engineer is recommended for computer access for

educational needs at age 6 and every 5 years thru retirement of employment age. The evaluation at age 10-11 would include evaluation for environmental controls, and should continue every 5 years thru age 25 then re-evaluate every 10 years thru life expectancy.

A psychological evaluation is recommended to assess coping skills and adjustment to John Doe injuries, and should include the family.

A recreational therapist should evaluate twice yearly for seasonal sports activities and community based programs.

A wheelchair evaluation of both the manual and power chairs should be completed with every wheelchair replacement.

No cognitive deficits have been reported, and John Doe is doing well in school. No neuropsychological testing has been recommended, but if deficits develop as a result of the traumatic brain injury, Neuropsychological testing may be recommended in the future. The current cost for testing is $2000.00.

Therapies

Description:	Age Initiated:	Through Age:	Cost:	Frequency:	Annual Cost:	Lifetime Cost:
Physical Therapy (at the center thru August 2009)	6	6	$200.00 per hour	24 hours per month	$24,000.00 (one time cost-not included in annual total)	$24,000.00
Physical Therapy	6	25	$150.00 to $200.00 per hour	24 hours per month	$43,200.00 to $57,600.00	$820,800.00 to $1,094,400.00
Physical Therapy	26	78.3	$150.00 per hour	2-4 hours per month	$3,600.00 to $7,200.00	$188,280.00 to $376,560.00
					Total Annual Cost:	**Total Lifetime Cost:**
					$46,800.00 to $64,800.00	**$1,033,080.00 to $1,494,960.00**

Rationale:

Currently John Doe attends physical therapy at The Center for Spinal Cord Injury Recovery, 24 hours per month, and the plan is to continue this routine thru August 2009. In September 2009, the option is to continue on site therapy, however the family would prefer to have therapy at home, due to the distance to travel and his school schedule. PT has the ability to complete this option, and would plan to complete in home physical therapy three days per week, two hours per day for a continued total of six hours per week. The other option is to stay at the center and complete a schedule that would fit into John Doe routine. The cost range calculates the option of staying at The Spinal Cord Injury Recovery thru age 25. Passive and active therapeutic exercise is necessary for ongoing strengthening and maintenance, and should continue through life time for maintenance to prevent a decline in John Doe functional status with the goal of furthering independence and preventing complications. Exercise in a therapeutic pool with warmer temperatures continues to be recommended, and can be utilized at the center even with the home based therapy.

After age 25, the physical therapy cost is calculated for home based two to four hours per month, for assessment and monitoring of the home maintenance exercise plan.

Diagnostic Testing

Description:	Year Initiated:	Through Age:	Cost:	Frequency:	Annual Cost:	Lifetime Cost
Renal Ultrasound	6	78.3	$224.17	Once per year	$224.17	$16,207.50
Urinalysis	6	78.3	$19.00	1-4 times per year	$19.00 to $76.00	$1,373.70 to $5,494.80
Urodynamic Studies	6	78.3	$3,500 to $4,000.00	Every 2-5 years	$700.00 to $2,000.00	$50,610.00 to $144,600.00
Chest Xray	6	78.3	$110.00	Once per year	$110.00	$7,953.00
Labs	6	78.3	$161.37	Every 1-2 years	$80.69 to $161.37	$5,833.89 to $11,667.05
					Total Annual Cost:	**Total Lifetime Cost:**
					$1,133.86 to $2,571.54	**$81,978.07 to $185,922.35**

Rationale:

Urodynamic studies will provide a comprehensive evaluation of the entire genitourinary tract to assess the pressures of the bladder that may be affected secondary to his neurogenic bladder..

The renal ultrasound will determine the size, shape, and position of the kidneys and the internal structures to evaluate for complications of urinary obstruction and abnormal accumulation of fluid.

Due to John Doe history of pneumonia, an annual chest xray may be anticipated.

Lab tests including, cbc (evaluates hematologic system and other organ systems, monitoring infection, dietary deficiencies, inflammation and bleeding), comprehensive metabolic panel (identifies problems with liver function, renal function and electrolyte imbalance, nutrition and problems involving metabolism). A urinalysis with culture & Sensitivity evaluates the urine for abnormal changes such as bacteria and blood.

Diagnostic testing may increase based on level of complications.

Medications						
Medication & Dosage:	**Age Initiated:**	**Through Age:**	**Frequency:**	**Cost:**	**Annual Cost:**	**Lifetime Cost:**
Senna-Gen – 8.6mg (1 tablet once daily	6	11	1 month supply	$4.78	$57.36	$286.80
Senna-Gen – 8.6mg (2 tablet once daily	12	78.3	1 month supply	$9.56	$114.72	$7605.94
Bisacodyl Suppository – 10mg (1/2 suppository once daily)	6	11	2 month supply	$6.31	$37.86	$189.30
Bisacodyl Suppository 10mg (1 suppository once daily)	12	78.3	1 month supply	$6.31	$75.72	$5020.24
Ditropan – 10mg (1 tablet once daily)	6	78.3	1 month supply	$98.43	$1,181.16	$85,397.87
Gentamycin bladder wash – 5cc solution (as needed)	6	78.3	2 times per year	$25.00	$50.00	$3,615.00
Pulmicort – 0.5mg nebulizer once daily	6	78.3	1 month supply	$388.92	$4,667.04	$337,426.99
Clear Tract D-Mannose Formula – 1 scoop daily	6	78.3	2 bottles per month	$26.99 to $34.99 per bottle	$647.76 to $839.76	$46,833.05 to $60,714.65
					Total Annual Cost:	**Total Lifetime Cost:**
					$6831.62 to $7023.62	**$486,375.19 to $500,256.79**

Rationale:

The above listed medications are adjusted accordingly for pediatric dosing and purchased through Progressive Medical with the exception of Clear Tract that is purchased by the family over the counter, and the Gentamycin flush purchased through the Compounding Pharmacy of Wyoming Park. Further adjustments may be necessary as an adult or if John Doe status changes.

The current dosage for the Senna-Gen is through age 11, and age 12 through adult, the standard is 2 tablets daily with the current 8.6 mg dosage.

The standard dosage for the Bisacodyl Suppository is 5mg daily through age 11, and age 12 through adult is 10mg. Currently he is taking ½ suppository of a 10 mg dosage.

It is difficult to adjust the Ditropan for an adult at this time, as John Doe current dosage may also be prescribed as an adult.

The Gentamycin bladder wash is used if a possible urinary tract infection is suspected and when used immediately, prevents the use of systemic antibiotics. Mrs. Doe reported that she had only used the solution twice daily for two days approximately twice per year. The amount of solution used per event, may change as an adult but would remain within the 1 liter solution provided.

The Clear Tract formula is an over the counter dietary supplement that promotes a healthy urinary tract, and no reported urinary tract infections have been diagnosed since starting the supplement, and per Mrs. Doe, she purchases two bottles per month at various locations. The cost varies per location purchased.

Per Dr. X recommendations, the current regimen should be continued for life time for bladder maintenance, but the Ditropan may advance to more then once daily with the aging process.

The Pulmicort currently has improved respiratory function, preventing complications. It is hopeful that the treatments may be discontinued, but at this time, the plan is to continue with the nebulizers as long as needed, possibly life time, to prevent further complications with pneumonia.

John Doe received a flu vaccine in 2008, and it is recommended annually regardless of injury, therefore not included in the life care plan. The Pneumonia vaccine has not been recommended, but may be considered based on standard guidelines at age 65 or older, regardless of injury.

Supplies						
Description/Item:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency:**	**Annual Cost:**	**Lifetime Cost:**
Catheter supply kits	6	78.3	$975.00	Per month	$11,700.00	$845,910.00
Disposable Diapers	6	78.3	$60.00 to $150.00	Per month	$720.00 to $1,800.00	$52,056.00 to $130,140.00
Disposable wash clothes	6	78.3	$46.00 per month	Once per month	$552.00	$39,909.60
Elbow protectors	6	78.3	$36.17 per pair	2-4 pair per year	$72.34 to $144.68	$5,230.18 to $10,460.36
DuoDerm 4x4 dressing	6	78.3	$18.23 each	10 per year	$182.30	$13,180.29
Nebulizer Supplies	6	78.3	31.50	Every 6 months	$63.00	$4,554.90
					Total Annual Cost:	**Total Lifetime Cost:**
					$13,289.64 to $14,441.98	**$960,840.97 to $1,044,155.150**

Rationale:

The catheter supplies currently in use is a pediatric closed system catheter, which also includes gloves, cleanser, and lubricant for catheterization every 5 hours. Per Spartan Medical Supply, no additional cost for an adult size catheter kit. With John Doe current catheterization scheduled, he uses 150 kits per month @ $6.50 per kit.

Currently John Doe wears pamper diapers size 6, using approximately 3-5 per day. Per Mrs. Doe, she has been purchasing a box for $40.00, and John Doe uses approximately 1.5 boxes per month. Per Spartan Medical Supply, the average cost for an adult disposable diaper, is $1.00 per diaper. This cost may fluctuate secondary to the exact brand, style and amount of usage as he ages. At this time it is difficult to determine when John Doe will transition into adult size diapers / briefs.

John Doe wears elbow protection pads and the last 2 pair were purchased in September 2008. He uses them at school, in therapy, and at home when using his elbows to crawl. It is unknown at this time the frequency of replacement as an adult, therefore calculated at current use.

The duoderm dressings are placed over bony prominences of John Doe spine with areas of beginning skin breakdown, as needed. Mrs. Doe reported sporadic usage of the duoderm, and last purchase of a quantity of 10 was in January 2009. She reported that John Doe at this time, will most likely use the box of 10 per year. It is unknown at this time the frequency of replacement as an adult, therefore calculated at current use.

Equipment						
Description/Item:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency:**	**Annual Cost:**	**Lifetime Cost:**
Nebulizer	5	78.3	$200.00	Every 5-10 years	$20.00 to $40.00	$1,466.00 to $2,892.00
Tomato sitter	4	16	$921.35	Every 2-5	$184.27 to $460.68	$2,211.24 to $5,528.16
Liko overhead Electric lift system	6	78.3	$6,000 to $7,000.00	Initial one time	$6,000.00 to $7,000.00(not included in annual costs)	$6,000.00 to $7,000.00
Motor replacement	36	78.3	$4,500.00 to $5,500.00	Every 30 years	$150.00 to $183.33	$6345.00 to $7,754.86
Lift system preventative maintenance	7	78.3	$50.00 to $150.00	Once per year	$50.00 to $150.00	$3,565.00 to $10,695.00
Lift system repair / replacement parts	16	78.3	$300.00 to $500.00	Every 10 years	$30.00 to $50.00	$1,869.00 to $3,115.00
Shower commode chair	4	78.3	$2,500.00 to $5,000.00	Every 3-5 years	$500.00 to $1,666.67	$37,150.00 to $123,833.58
Sleep safe bed	4	78.3	$5,965.00	Every 3-5 years	$1,193.00 to $1,988.33	$88,639.90 to $147,732.92
Rifton Dynamic Stander	5	16	$1,800.00	Every 2-5 years	$360.00 to $900.00	$3,960.00 to 9,900.00
Wearable Therapy	5	18	$24,250.00	Every 5 - 6 years	$4,041.67 to $4,850.00	$52,541.71 to $63,050.00
Wearable Therapy	19	78.3	$24,250.00	Every 10 years	$2,425.00	$143,802.50
Wearable Therapy Maintenance	6	78.3	$50.00 to $55.00	Monthly	$600.00 to $660.00	$43,380.00 to $47,718.00
					Total Annual Cost:	**Total One Time Cost:**
					$9,553.94 to $13,374.01	**$390,930.35 to $573,022.02**
Rationale:						

The Special Tomato sitter was purchased from Sammons & Preston via Cole Rehabilitation Technologies in August 2007. It was recommended to help support John Doe during sitting activities. The chair is a soft contoured seat that provides appropriate body support during sitting activities at a table with his peers and promotes social interaction with his siblings. The current chair is appropriate up to 80 pounds, and can be purchased in adult size and recommended through age 16.

An overhead track lift system is recommended for long term use in transferring John Doe within his bedroom and bathroom, for safety and preventing risk of falls for John Doe as well as his caregiver. Currently Mrs. Doe picks him up and transfers him from the bed to the wheelchair, and lifts him down into the bathtub. Due to the current limited living space, a rental lift would further cause risk of falling and injury.

An annual preventative check of the system is recommended annually. The tracking system would not need to be replaced. The repairs and replacement parts consist of batteries, electronic parts in the motor, hand controls and wheel coverings.

John Doe Flamingo model shower/commode chair and Sleep Safe electronic adjustable bed, was purchased via Cole Rehabilitation Technologies in May 2007. Mrs. Doe reported no concerns with the current bed and chair. Replacements may vary in style as John Doe grows.

The Rifton Dynamic Stander was purchased online through Rifton in May 2008, and allows for growth up to 120 pounds. John Doe is able to propel himself while in the standing frame and is recommended until age 16, then transitioned into a standing power chair.

A Beluga RSB with reclining lateral support bathtub bench was purchased in July 2007 for $2,699.50, to lift John Doe into the bathtub. The system is used intermittently, and if John Doe obtains an overhead lift system, the bath system would not be replaced, therefore replacement was not included in the life care plan.

Home based Neuromuscular Stimulation Program , involving wearable therapy garments were purchased for John Doe from Bioflex Electromedicine in October 2008. The garments are rotated and tolerated for 30 minutes each treatment. The garments are custom made to fit closely to the body for electrode placement. The wearable therapy is for muscle stimulation to reduce muscle atrophy, strengthen contractions, improve function, reduce joint contractures, re-educate muscle groups for improved function, decrease spasticity, increase circulation, improve bowel function and facilitate better spinal alignment and posture.

An evaluation is recommended for every replacement for measuring and fitting and is $500.00, which is included in the above replacement costs.

The maintenance cost includes conduction gel, batteries and electrodes.

Orthotics/Prosthetics

Description/Item:	Age Initiated:	Through Age:	Cost:	Replacement:	Annual Cost:	Lifetime Cost:
Lower extremity night braces	6	78.3	$2,500.00 to $3,000.00	Every 2-4 years	$625.00 to $1,500.00	$45,175.00 to $108.450.00
					Total Annual Cost:	**Total Lifetime Cost:**
					$625.00 to $1,500.00	$45,187.50 to $108.450.00

Rationale:

Currently John Doe wears the adjustable bilateral lower extremity ankle foot orthotics during sleeping hours to prevent contractures. The cost will vary depending on customization.

Wheelchairs						
Description/Item:	**Age Initiated:**	**Through Age:**	**Cost:**	**Replacement:**	**Annual Cost:**	**Lifetime Cost:**
Manual wheelchair	6	16	$3,000.00 to $6,000.00	Every 2 years	$1,500.00 to $3,000.00	$15,000.00 to $30,000.00
Manual wheelchair	16	78.3	$3,000.00 to $6,000.00	Every 3-5 years	$600.00 to $2,000.00	$37,380.00 to $124,600.00
Power wheelchair	6	78.3	$25,000.00 to $35,000.00	Every 3-5 years	$5,000.00 to $11,666.67	$361,500.00 to $843,500.24
					Total Annual Cost:	**Total Lifetime Cost:**
					$7,100.00 to $16,666.67	**$413,880.00 to $998,100.24**

Rationale:

John Doe current power chair is the Permobil with Chairman Robo base with the Kid-ab-ra Matrix Cushion, and small table tray, purchased via Cole Rehabilitation Technologies in May 2007. This power chair has the ability to lower to the floor for age appropriate play, and no concerns with the chair noted.

The manual wheelchair purchased via Cole Rehabilitation Technologies in May 2007, was a Sunrise Zippie 2. This chair is no longer recommended due to poor posturing and lack of mobility independence. He is currently using a loaner TriLite manual chair, and Mrs. Doe reported that measurements have been completed. This chair is light weight and made of Titanium that allows for positioning. John Doe has been reported to maneuver independently.

Wheelchair Accessories and Maintenance

Description /Item:	Age Initiated:	Through Age:	Cost:	Frequency:	Annual Cost:	Lifetime Cost:
Wheelchair cushions	6	78.3	$500.00	Every 2-3 years	$166.67 to $250.00	$12,050.00 to $18,075.00
Power chair battery	6	78.3	$300.00 to $500.00	Every 1-3 years	$100.00 to $500.00	$7,230.00 to $36,150.00
Power chair maintenance / repairs	6	78.3	$2,500.00 to $5,000.00	Every 2-5 years	$500.00 to $2,500.00	$36,150.00 to $180,750.00
					Total Annual Cost:	**Total Lifetime Cost:**
					$766.67 to $3,250.00	**$55,430.24 to $234,975.00**

Rationale:

Power chair maintenance may include repair of the electronic controls, arm rests, leg rests and seating. Power chairs have warranties for maintenance for the first 18 months after purchase.

Aids for Independent Living

Description /Item:	Age Initiated:	Through Age:	Cost:	Replacement:	Annual Cost:	Lifetime Cost:
Computer Assistive Technology	6	78.3	$7,000.00 to $8,000	Every 5 years	$1,400.00 to $1,600.00	$101,220.00 to $115,680.00
Assistive Technology training	6	65	$135.00 per hour	8 hours per month	$12,960.00	$764,640.00
Assistive Technology training	66	78.3	$135.00 per hour	8 hours every 10 years	$108.00	$1,328.40
Environmental Controls	10	78.3	$12,000.00 to $16,000.00	Every 10 years	$1,200.00 to $1,600.00	$81,960.00 to $109,280.00
ADL assistive devices	6	78.3	$500.00 to $1000.00	Every 2-4 years	$125.00 to $500.00	$9,037.50 to $36,150.00
					Total Annual Cost:	**Total Lifetime Cost:**
					$15,793.00 to $16,768.00	**$958,185.90 to $1,027,075.90**

Rationale:

Aids for independent living may include reachers, specialized dining utensils, plates, grooming assistive devices. No recommendations have been made at this time, but as John Doe functional status advances into adulthood, these items may be recommended and should be allowed for to maintain a maximum level of independence.

Adaptive computer equipment may include a head mouse or track ball, height adjustable desk, various software for school communication, as well as voice recognition dictation for future needs. Once equipment is obtained, training is recommended to continue until set up with employment. Ongoing evaluations are recommended thru retirement age.

The environmental control unit would allow John Doe the ability to control his own environment such as lights, telephone, television, DVD player, etc.

Home Care

Description /Service:	Age Initiated:	Through Age:	Cost:	Frequency:	Annual Cost:	Lifetime Cost:
Home Health Aide	6	78.3	$24.00 per hour	12-24 hours per day	$103,104.00 to $206,208.00	$7,454,419.20 to $14,908,838.40
Home Health Aide	6	78.3	$48.00 per hour	Holiday (7)	$4032.00 to $8064.00	$291,513.60 to $583,027.20
Registered Nurse	6	78.3	$140.00 per visit	One time per month	$1,680.00	$121,464.00
					Total Annual Cost :	**Total Lifetime Cost:**
					$108,816.00 to $215,952.00	**$7,867,396.80 to $15,613,329.60**

Rationale:

Currently the home health care for John Doe is provided by the family, hired and supervised by Health Partners. Dr. X prescribed attendant care 24 hours per day, 7 days per week. Per Case Manager, the negotiated current reimbursement is 12 hours per day due to John Doe being a minor and the daily schedule that was provided by Mrs. Doe. Once John Doe is an adult, and depending on his level of independence, function, complications and barrier free residential setting, adjustments may be made accordingly. Safely exiting the home in an emergency should be considered in the adjustment of attendant care.

Registered nurse supervisory visits have been prescribed once monthly for client assessment, case evaluation, education and staff supervision.

Case Management						
Description/ Service:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency:**	**Annual Cost:**	**Lifetime Cost:**
Case Management	6	78.3	$78.00 per hour	2-4 hours per month	$1,872.00 to $3,744.00	$135,345.60 to $270,691.20
					Total Annual Cost:	**Total Lifetime Cost:**
					$1,872.00 to $3,744.00	$135,345.60 to $270,691.20

Rationale:

Case management is currently provided by Preferred Case Management. Ongoing case management services is recommended for ongoing assessment, evaluation and monitoring of medical services to ensure services are coordinated and delivered effectively. Per, Case Manager, services are recommended on average, 2-4 hours per month for John Doe life time. The exact amount of monthly hours may fluctuate based on medical appointments, complications and coordination of services required.

Transportation						
Description/ Item:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency/ Replacement:**	**Annual Cost:**	**Lifetime Cost:**
Electronic driver controls	16	74	$25,000.00 to $50,000.00	At age 16, 18, then every 7 years	$4,310.34 to $8,620.69	$249,999.72 to $500,000.02
New modified van	11	74	$55,000.00 to $60,000.00	Every 7 years	$7,857.14 to $8,571.43	$494,999.82 to $540,000.09
Driver Rehabilitation Program	14	16	$1,553.00 to $3,569.00	One time only	$1,553.00 to $3,569.00 (not included in annual costs)	$1,553.00 - $3,569.00
Modification evaluation	18	74	$954.00	Every 7 years	$136.29	$7632.24
					Total Annual Cost:	**Total Lifetime Cost:**
					$12.303.77 to $17,328.41	**$754,184.78 to $1,051,201.35**

Rationale:

A modified 2007 Buick Terraza van was purchased in August 2007 for the transport of John Doe through Clock Conversions. Modifications included the Braun GM Entervan 2 Conversion wheelchair lift system, Ezlock tiedown base and wheelchair hardware. A 7 year / 70,000 mile extended warranty was also included. Total cost for this modified van was $56,369.70. Gary Hams, Sales Consultant from Clock Conversions reported that the Buick Terraza van is no longer manufactured, and a similar van replacement would most likely be at a lesser purchase price. The van replacement frequency was based on the August 2007 purchase contract with ABC Company for 7 years, and John Doe was 4 years of age at the time. (Total of 10 replacement vans = $550,000.00 - $600,000.00 divide by 63 years = annual cost)

Once John Doe is of driving age, further modifications would be necessary based on an assessment by a Driver Rehab Specialist, for possible independence with driving. Based on John Doe current level of function, he would most likely require a level of electronic driving controls, but that it would be difficult to determine at this time, to what level of controls would be necessary. The driving adaptations would be added at age 16, based on the current legal age to obtain a drivers license, and would again be added to the next purchased van at age 18. The electronic controls are not transferable unless the vehicle is identical to the previous owned vehicle. (Total of 10 placements of electronic controls = $225,000 - $450,000.00 divide by 58 years)

All of the modifications should not require replacement for 7-10 years without maintenance requirements.

At the age of 14 and 8 months, John Doe will be able to start the State of Michigan driving program. Beyond the state mandated program, he would attend the driver rehabilitation program at Mary Freebed Rehabilitation Hospital. The program consists of an occupational therapy evaluation to assess vision, motor function, cognition and visual/perceptual skills, as well as a functional driving evaluation by a driver rehab specialist. He would then require 6-20 hours of training using the controls. The therapists would make the recommendations for the replacement van modifications and driver controls. They recommend an evaluation with every replacement van as John Doe level of driver controls may change.

Mileage to medical appointments was not included due to the agreement in the purchase contract of the modified van.

Health and Strength Maintenance						
Description /Item:	**Age Initiated:**	**Through Age:**	**Cost:**	**Frequency/ Replacement:**	**Annual Cost:**	**Lifetime Cost:**
Discovery Bike	4	78.3	$5,000.00 to $5,500.00	Every 3-5 years	$1,000.00 to $1,833.33	$74,300.00 to $136,216.42
Lift Gait Trainer	4	78.3	$5,000.00 to $10,000.00	Every 7 – 10 years	$500.00 to $1,428.57	$37,150.00 to $106,142.75
Treadmill	4	78.3	$4,000.00	Every 7-10 years	$400.00 to $571.43	$29,720.00 to $42,457.25
Mat Table	6	78.3	$1,500.00 to $3,000.00	One time only	$1,500.00 to $3,000.00 (Not included in annual costs)	$1,500.00 to $3,000.00
Parallel bars	6	78.3	$1,000.00 to $2,000.00	One time only	$1,000.00 to $2,000.00(not included in annual costs)	$1,000.00 to $2,000.00
Pulley weight system	6	78.3	$575.00 to $3,000.00	One time only	$575.00 to $3,000.00 (not included in annual costs)	$575.00 to $3,000.00
Disability Camp / activities	7	18	$200.00	One time per year	$200.00	$2,200.00
					Total Annual Cost:	**Total Lifetime Cost:**
					$2,100.00 to $4,033.33	**$146,445.00 to $295,016.42**

Rationale:

The existing Discovery bike with 12" wheels, and additional chest vest for upper body support, was recommended for ongoing outside activities and recreation. The current bike is appropriate and adjustable for growth up to 125 pounds and was purchased in October 2007 from Sammons & Preston via Cole Rehabilitation Technologies at the age of 4. Cole Rehabilitation Technologies is a dealer that provides the delivery and labor for set up, but is no longer in business. The cost is comparible to current costs for replacement. The bike is recommended to strengthen John Doe bilateral lower extremities, improve and maintain his fine motor skills in bilateral upper extremities, and maintain bilateral lower extremity range of motion and trunk musculature. The bike allows participation in cardiovascular and endurance training, and may be replaced as an adult.

The Pediatric Lite Gait Mobility Frame Walkable was purchased from Sammons & Preston via Cole Rehabilitation Technologies in July 2007, and was recommended to continue mobility, strengthening and weight bearing. The device allows John Doe to participate in walking with the therapist or caregiver. It helps to produce proper bone development and maintain bone strength. The Lite gait promotes proper posture, balance, coordination, trunk and lower extremity strenth, and gives John Doe cardiovascular benefits to promote health and wellness, preventing future complications. The current Lite Gait is adjustable until John Doe grows past 5

foot 2 inches and 75 pounds and can be replaced through adulthood.

The current treadmill is a Prevcor model 9.31 purchased from American Home and Fitness at the time of the Lift Gait Trainer purchase. The treadmill is in conjunction with the Lite Gait to simulate ambulation.

PT recommended a mat table, parallel bars and weight system for John Doe home therapy plan, once he has adequate space for the equipment to be placed. No specific equipment recommendations have been made, therefore, a range of equipment costs was obtained from Sammons & Preston.

A Tumble forms 2 Jettmobile scooter was purchased in June 2007, to allow John Doe functional mobility for floor playing and interaction with siblings. It was recommended for the life of the scooter, and Mrs. Doe reported that he rarely uses the scooter since he can now army crawl on the floor, therefore no replacement recommended.

Mary Free Bed Rehabilitation Hospital offers several community based recreational events, such as a one week summer day camp, wheelchair softball, golf, tennis, water skiing, snow skiing, basketball, canoeing, swimming, rock climbing and cycling. The typical age to start the activities is age 7 thru age 18. All of the clinics / camp are evaluated by his abilities to find the appropriate activities for him, but he is still encouraged to participate, as the participants vary in age and abilities. The recreational therapist would evaluate and make recommendations on the clinics. The cost varies per clinic, some are no charge and some are up to $25.00. The cost listed above is the maximum amount of activities per year.

Architectural Renovations

Description:	Age Initiated:	Through Age:	Cost:	Frequency:		One Time Cost:
Home Modifications	6	18	$282,143.79			$282,143.79
Occupational Therapist	6	6	$600.00 to $1,200.00	One time only		$600.00 to $1,200.00
						Total One Time Cost:
						$282,743.79 to $283,343.79

Rationale:

John Doe has limited accessibility within his current living environment. He is able to access his bedroom, bathroom, kitchen and living room floor space, but due to all of his equipment, and lack of storage space, accessible areas of the space is very limited.

An estimate for the home modification plans have been prepared for an addition with a walk out lower level, by New Dimension Building, which would create an expanded living space and accessibility for John Doe to all living areas, and has been reviewed by PT. The plans would include a therapy room for John Doe home exercise plan, as well as the possibility for home based physical therapy.

The estimate reviewed is for $294,125.50, which includes a hair salon for Mrs. Doe to return to her career, but remain available to meet John Doe needs at home. The cost listed above has the hair salon deducted from the estimate.

It is recommended that an occupational therapist experienced in Inclusive design barrier free living, review the existing modification plans to clarify and continue consulting with the builder as necessary to ensure an appropriate barrier free living space that would meet his needs until age 18 or beyond.

Per Mr. X, at New Dimension Building, it is very difficult to determine the cost for a new construction at this time, as additional factors must be taken into consideration, such as the property chosen for the new site, but the option of a new construction could be built within the modification cost.

Beyond age 18, Mr. Doe expressed that John Doe may possibly be able to live in the lower level of the home, based on his functioning at that time.

Educational Plan

Description /Item:	Age Initiated:	Through Age:	Cost:	Frequency	Annual Cost:	One Time Cost:
					Total Annual Cost:	Total One Time Cost:

Rationale:

John Doe currently attends Kindergarten at Hudsonville Public School District. An annual individual educational plan should be completed to determine any special education needs. As John Doe advances through high school graduation, career testing and vocational planning will be provided within the school throughout high school and to age 26. No additional costs for services within the school system. Therapies within the school include, Psychology, speech, occupational and physical therapies.

John Doe should consider college options in the future, as future employment opportunities tend to be less physically demanding with a college degree.

Potential Complications	
Complication:	**Relationship:**
Pneumonia	Patients who have a weakened respiratory function, history of pneumonia, as well as with prolonged periods of immobility, places them at a higher risk for reoccurring pneumonia. Treatment may include as minimal as an oral antibiotic, or in more severe episodes, may require hospitalization, intravenous antibiotics and mechanical ventilation. Maintaining an exercise therapy program, as well as continued nebulizer inhaled treatments for improved lung function decrease the risk for infection. John Doe last hospitalization for pneumonia was March 2008 for 5 days and the cost was, $19,063.20.
Urinary Tract Infection / Kidney Infection / Kidney and Bladder stones	Due to the lack of bladder control, without proper emptying of the bladder and follow up care, and catheterization, infection can begin early with a urinary tract infection. If not detected may lead to a kidney infection or if severe, urosepsis, which is an infection into the blood stream, which can be fatal if left untreated. Treatment may include oral antibiotics, or if severe, would require hospitalization, intravenous antibiotics, and possible mechanical ventilation. Preventative measures to keep the bladder emptied and assessing for any changes in the urine quality and kidney function helps prevent the severe complications. John Doe was last hospitalized in June 2007 for 3 days and the cost was $4,033.94. His last urinary tract infection in June 2008 required the use of oral antibiotics, and with his current preventative measures, no further infections have occurred.
Decubitus Ulcers	An ulcer is due to local interference with the circulation, also called pressure ulcer. Persons most at risk are those who are emaciated, obese, or immobilized. The major factor in the development of an ulcer is prolonged pressure on a part due to the weight of the body or an extremity. It begins as a reddened area and can quickly involve deeper structures. Treatment varies depending on the stage of ulcer, may range from frequent position changes, or if becomes severe can require frequent dressing changes at home, to hospitalization with intravenous antibiotics. Can lead to multiple surgeries involving irrigation and debridement of the wound. Exercise assists in improving circulation, maintaining upper body strength, therefore assisting with frequent position changes to relieve pressure. John Doe was hospitalized for 4 days with a back abcess which required surgical

	irrigation and drainage in November 2008, and the cost was $13,967.99. He has had no further complications with skin breakdown since.
Falls / Fractures	Improper lifting techniques, safety belts and lack of lift system all contribute to an increased risk of falls leading to fractures.
GI complications	Patients with spinal cord injury have a slowing of the GI system and gastric acid may increase causing ulcers or GI bleeding. H2 blockers are often used for prophylaxis.
Deep Vein Thrombosis	Prolonged immobility causes increased risk for developing a blood clot in the lower extremities, which can also lead to a pulmonary embolism. If detected early the standard treatment is intravenous blood thinners, hospitalization, followed by continued oral or injectable medications at home. If not detected may be fatal. Physical therapy assists in the prevention of the pooling of the blood in the lower extremities by increasing circulation, therefore, preventing blood clots.
Cardiovascular Damage	Immobility can cause abnormally high levels of stimulant hormones, like adrenaline to be released into the bloodstream, resulting in fevers, high heart rates, and high blood pressure, therefore causing a weakened heart. This can lead to a series of complications including, heart attack and congestive heart failure. If this were to occur, treatment depends on the level of severity, but may result in oral medications, multiple hospitalizations and procedures. Physical therapy and remaining physically active assists in maintaining proper heart function and circulation.
Autonomic Dysreflexia	Can occur in spinal cord injured patients at T6 injury and above. It may also occur due to stimuli such as a bladder infection or distended bladder. Improper positioning in the chair as well as tight clothing may cause episodes. It is characterized by flushing, general malaise or severe headache, and elevated blood pressure and heart rate. The elevated blood pressure can result in stroke and death.
Impaired sexual functioning and fertility	Males may require assistive techniques for erectile dysfunction. Repeated urinary tract infections and development of scar tissue in the male reproductive system reduces the viability of sperm. Techniques to harvest sperm may be considered for artificial insemination.
Musculoskeletal complications	Complications such as overuse syndrome, chronic pain of the upper extremities, shoulders, elbows and wrists are common, and can result in a decreased functional status over time. May develop peripheral nerve entrapment such as carpat tunnel syndrome in the wrists. Decreased shoulder functioning and increased pain increases

	with aging. Rotator cuff impairment and tendonitis of the shoulders are common problems. Remaining physically active, and utilizing necessary equipment, stretching through physical therapy can all delay the onset.
Contractures	Contractures are the result of increased tone and decreased range of motion in a joint. They can require surgical intervention, treatment with physical therapy, range of motion, standing frames, nerve blocks and splinting. Ongoing physical therapy, exercise and stretching can decrease the depth of contractures.
Spasticity	Spasticity is an involuntary rhythmic contraction of a muscle. Can result in increased disability by interfering with transfers, ADL activities, positioning in the chair, interrupting sleep and causing pain. Spasticity is treated with oral medications, physical therapy for range of motion and stretching. Standing frame will help reduce spasticity. Avoiding extreme temperature changes, preventing bladder infections, and preventing constipation and skin breakdown will also help.
**** The frequency and severity of these complications cannot be predicted.***	

Information Source List		
Source		**Information**
Preferred Case Management		Case Management recommendations
Clock Conversions		Replacement of modified van
Mapquest.com		Mileage
Lifeexpectancy.com		Life expectancy
Dr. Urologist office		Urological recommendations
Driver Rehab Specialist – Mary Freebed Rehabilitation Hospital		Driver Rehabilitation Program
Health Partners		Home health aide confirmed rates, holidays
Spartan Medical Supply		Supply purchase history and costs
Western Michigan Pediatrics		Primary care recommendations
Inclusive Design Specialist – Alliance Therapy		Functional occupational evaluation and equipment replacements, home modifications
The Spinal Cord Injury Recovery		Physical Therapy recommendations and costs
Rehab Engineer – Assistive Technology of Michigan		Assistive Technology recommendations
Educational Consultant – Feinberg Consulting		Educational planning
Hudsonville Public Schools		Educational services within school system
Vocational Rehab Specialist – Feinberg Consulting		Vocational recommendations
Ergonomics Plus Inc.		Liko overhead track lift system costs
Contractor – New Dimension Building		Home modifications / New construction
Quest Laboratories		Lab costs
Certified Rehabilitation Technology Supplier		Wheelchair, durable medical equipment costs, maintenance and replacement
Oxygen Airway Medical Supply		Nebulizer equipment replacement
American Home & Fitness		Treadmill replacement cost

Sammons & Preston		Aids for independent living, Health & Strength maintenance equipment
Mary Free Bed Rehabilitation Hospital		Outpatient psychological counseling recommendations and costs
Recreational Therapist – Mary Free Bed Rehabilitation Hospital		Recommendations, costs for recreational activities and evaluations.
Spectrum Health System		Diagnostic costs
Bioflexmedicine		Wearable Therapy replacement and costing

Bibliography

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Deutsch, Paul M., and Horace W. Sawyer, A Guide to Rehabilitation. White Plains: AHAB Press, 2003, 2-3.

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